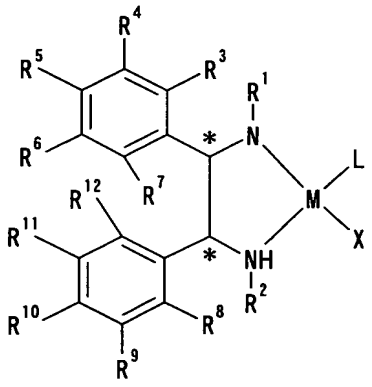
ABSTRACT

The present invention provides a water-soluble transition metal-diamine complex which can be easily separated from reaction products through liquid separation, etc. and is recycleable; an optically active diamine compound constituting the ligand of the complex; and a catalyst for asymmetric synthesis which comprises these. The present invention relates to a water-soluble optically active transition metal-diamine complex represented by the formula (2):



(2)

[wherein R^1 and R^2 each represents hydrogen, a hydrocarbon group, $-SO_2R^{13}$ (wherein R^{13} is a hydrocarbon group, substituted amino, etc.), etc.; R^3 to R^{12} each represents hydrogen, a hydrocarbon group, alkoxy, substituted amino, etc.; M represents a transition metal; X represents halogen; L represents a ligand; and * indicates an asymmetric carbon atom; provided that at least one of R^3 to R^7 and R^8 to R^{12} is substituted amino], a catalyst for asymmetric synthesis containing the complex, and a process for producing an optically active alcohol, which comprises using the catalyst to asymmetrically reduce a ketone.